

**Notice of Allowability**

Application No.

10/558,712

Applicant(s)

RUTTEN ET AL.

Examiner

Howard L. Williams

Art Unit

2819

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to \_\_\_\_.
2. ☒ The allowed claim(s) is/are 1-6.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some\* c) ☐ None of the:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |                                                                                                                              |                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                  | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                         | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date ____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date <u>20051129</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                   | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|                                                                                                                              | 9. <input type="checkbox"/> Other ____.                                               |

The following is an examiner's statement of reasons for allowance: The art of record was not seen to disclose the additional sample and hold unit(s) operative with a second clock having a different phase and an output unit to output from either of the sample and hold units.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Insert as a new first paragraph on page 1:

-- \*\* CONTINUING DATA \*\*\*\*\*

This application is a 371 of PCT/IB04/50771 05/25/2004

\*\* FOREIGN APPLICATIONS \*\*\*\*\*

EUROPEAN PATENT OFFICE (EPO) 031016207 06/04/2003 --.

Please amend the claims as follows to add status identifiers:

1. (Original) Bit-detection arrangement able to convert an analog signal (AS) having an amplitude into a digital signal (DS) representing a bit sequence from which the analog signal (AS) is derived, comprising:
  - a quantizer (11) able to produce an output signal  $S_1$  by quantizing the amplitude of the analog signal (AS), and
  - a phase detector  $PD_1$  (12) able to determine a phase difference  $\Delta P_1$  between the output signal  $S_1$  and a clock signal  $C_2$ , and able to generate an output signal  $PH_2$  having an amplitude, where the amplitude of  $PH_2$  indicates the phase difference  $\Delta P_1$ ,
  - an analog to digital converter ADC (13) which is able to output a processed signal (PrS) by sampling the output signal  $PH_2$  at a sample rate controlled by a clock signal  $C_1$  having a frequency which is equal to the frequency of clock signal  $C_2$  divided by a factor  $n$ ,
  - a digital phase locked loop DPLL (2) able to lock on the processed signal (PrS) and able to output a phase signal  $PH_1$  using the clock signal  $C_1$ , and
  - a bit decision unit (3) able to output the digital signal (DS) and a clock signal  $C_3$  using the phase signal  $PH_1$ , the clock signal  $C_1$  and the output signal  $S_1$ , comprising a sample and hold unit  $SH_1$  able to sample the output signal  $S_1$ , using a clock signal  $C_{SH1}$  having a frequency equal to the frequency of clock signal  $C_2$ , and to hold  $n$  samples,  $sample_{y=1}$  through  $sample_{y=n}$ , of the output signal  $S_1$  for a clock period of clock signal  $C_1$ ,  $n$  being the division factor of clock signal  $C_2$ , where  $n$  is an integer greater than one, characterized in that the bit decision unit further comprises
    - at least one additional sample and hold unit  $SH_2$  able to sample the output signal  $S_1$ , using a clock signal  $C_{SH2}$  and wherein the frequency of the clock signal  $C_{SH2}$  is equal to the frequency of clock signal  $C_{SH1}$  and the phase of clock signal  $C_{SH2}$  is substantially different from the phase of clock signal  $C_{SH1}$ , and
    - an output unit for outputting samples of either the sample and hold units  $SH_1$  or  $SH_2$ , wherein the samples of the sample and hold unit  $SH_1$  are outputted when the phase

signal  $PH_1$  indicates that the phase difference  $\Delta P_1$  is in a first region and the samples of the additional sample and hold unit  $SH_2$  are outputted when the phase signal  $PH_1$  indicates that the phase difference  $\Delta P_1$  is in a second region.

2. (Original) Bit-detection arrangement as claimed in claim 1, characterized in that the phase difference between clock signal  $C_{SH1}$  and clock signal  $C_{SH2}$  is approximately 180 degrees and the phase of clock signal  $C_{SH1}$  is approximately equal to the phase of clock signal  $C_2$  and wherein in the first region the phase difference  $\Delta P_1$  is between 0 degrees and 90 degrees and in the second region the phase difference  $\Delta P_1$  is between 90 degrees and 180 degrees.

3. (Amended) Bit-detection arrangement as claimed in claim 1 or 2, characterized in that the bit decision unit further comprises sample and hold units  $SH_3$  through  $SH_x$ , wherein the sample and hold units  $SH_3$  through  $SH_x$  are clocked by clock signals  $C_{SH1}$  through  $C_x$ , wherein the frequency of the clock signals  $C_{SH2}$  through  $C_{SHx}$  is equal to the frequency of clock signal  $C_{SH1}$  and the phases of the clock signals  $C_{SH1}$  through  $C_{SHx}$  are substantially different from each other and in that the output unit is adapted to output samples of the sample and hold units  $SH_1$  through  $SH_x$ , wherein the phase signal  $PH_1$  is divided into  $x$  regions,  $x$  being the number of sample and hold units, and wherein the output unit is able to output samples of the sample and hold unit which corresponds to the region in which the current value of the phase signal  $PH_1$  resides.

4. (Original) Bit-detection arrangement as claimed in claim 1, characterized in that the bit detection unit further comprises a clock signal selection unit for outputting the clock signal  $C_{SH1}$  and clock signal  $C_{SH2}$  wherein the clock signal selection unit is able to change the phases of the clock signals  $C_{SH1}$  and  $C_{SH2}$  in dependence of the current value of the phase signal  $PH_1$ .


5. (Original) Bit-detection arrangement as claimed in claim 4, characterized in that the clock signal selection unit is fed with clock signals  $C_{r1}$  through  $C_{rx}$  having a frequency

equal to clock signal  $C_2$  and wherein the phases of the clock signals  $C_{f1}$  through  $C_{fx}$  differ from each other, and wherein the clock signal selection unit passes two of the clock signals  $C_{f1}$  through  $C_{fx}$  through as the clock signals  $C_{SH1}$  and  $C_{SH2}$  in dependence of the phase signal  $PH_1$ .

6. (Amended) Apparatus for reproducing information recorded on an information carrier, provided with the bit-detection arrangement as claimed in ~~one of the previous~~ claims claim 1.

Any inquiry concerning this communication should be directed to Howard L. Williams at telephone number 571.272.1815. The Patent and Trademark Office central facsimile number for application specific correspondence intended for entry is 571-273-8300.

3/1/07  
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